

1/8

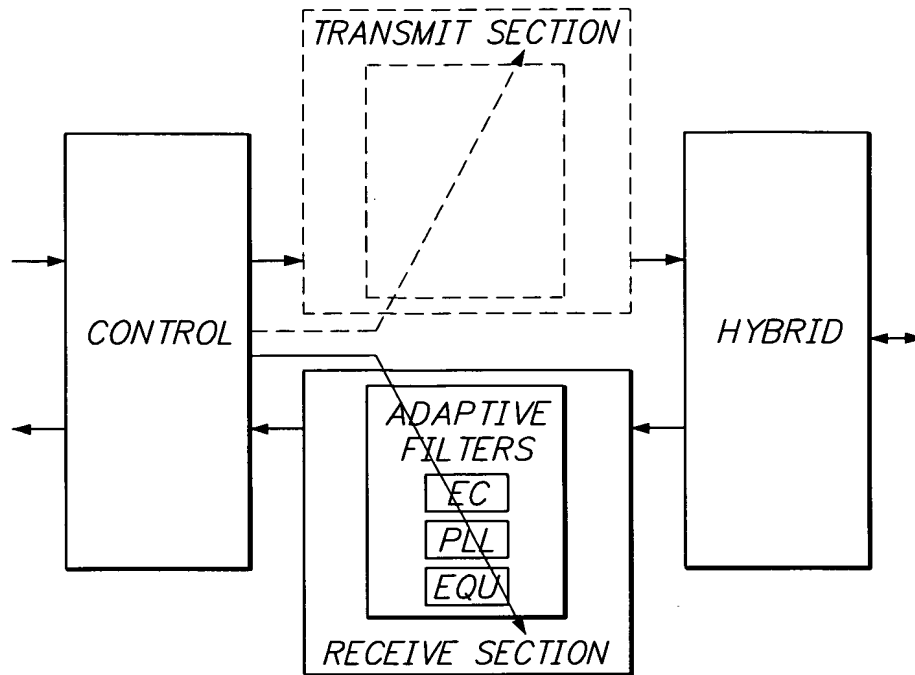


FIG. 1

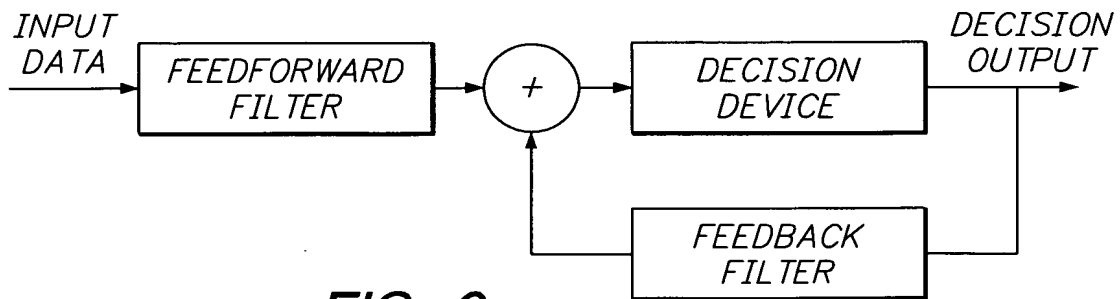


FIG. 2

2/8

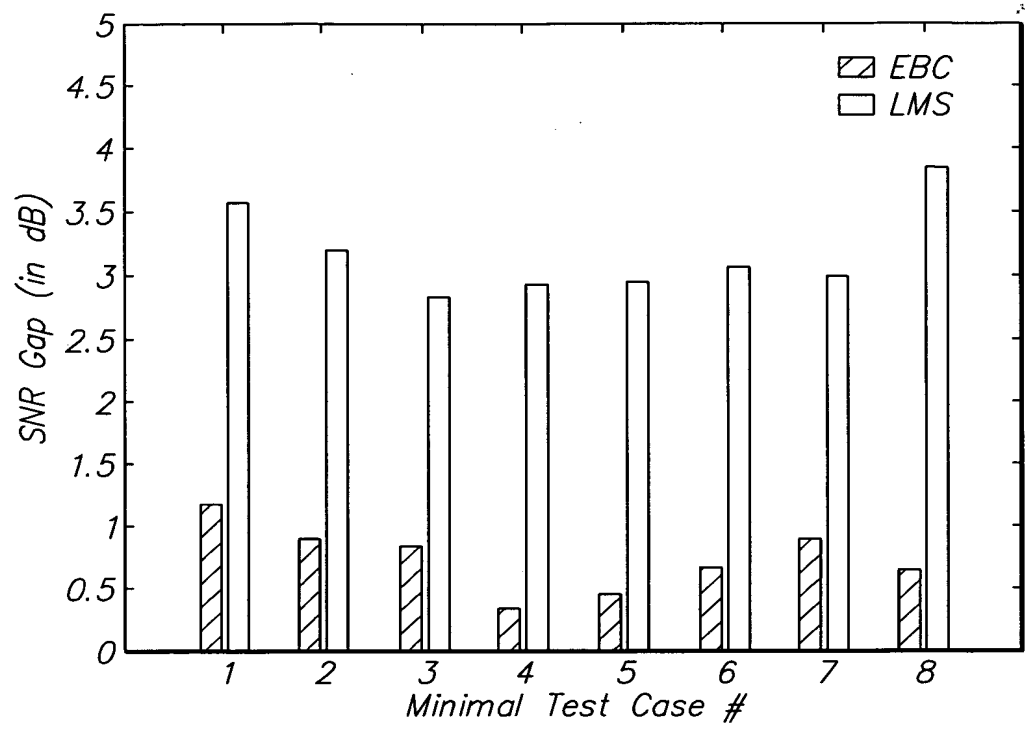


FIG. 3A

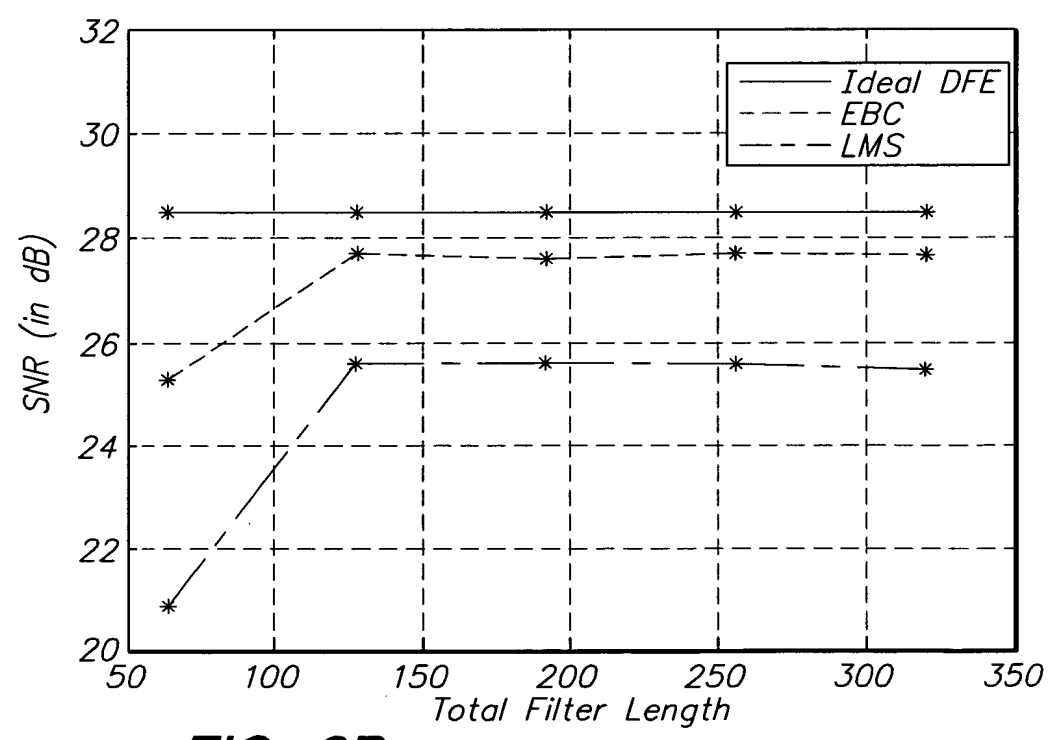


FIG. 3B

3/8

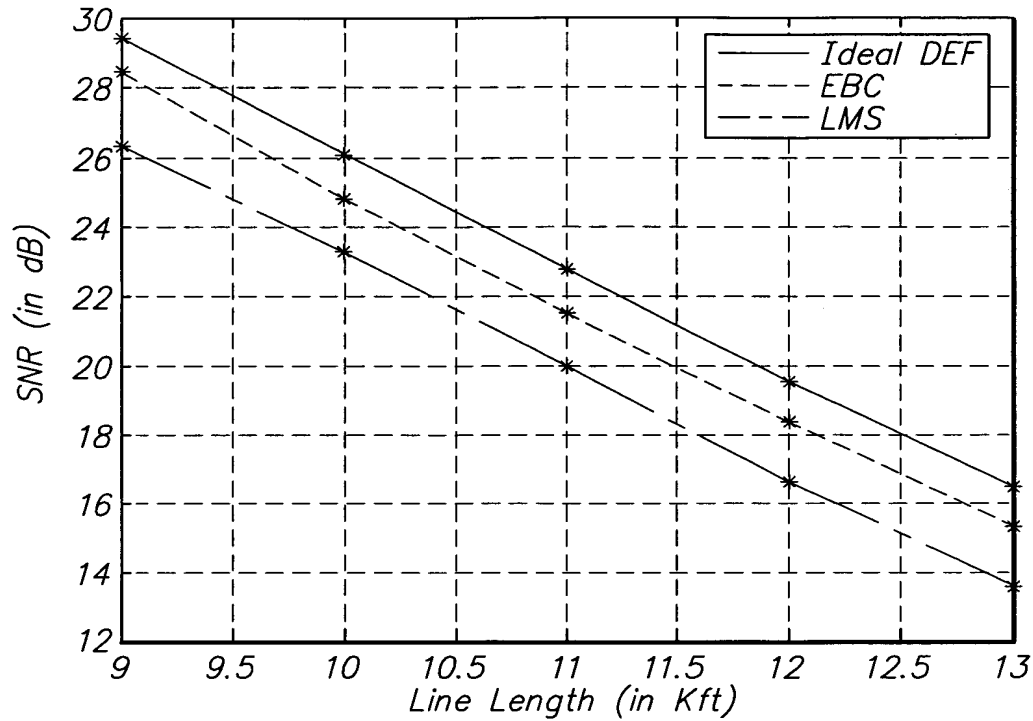


FIG. 3C

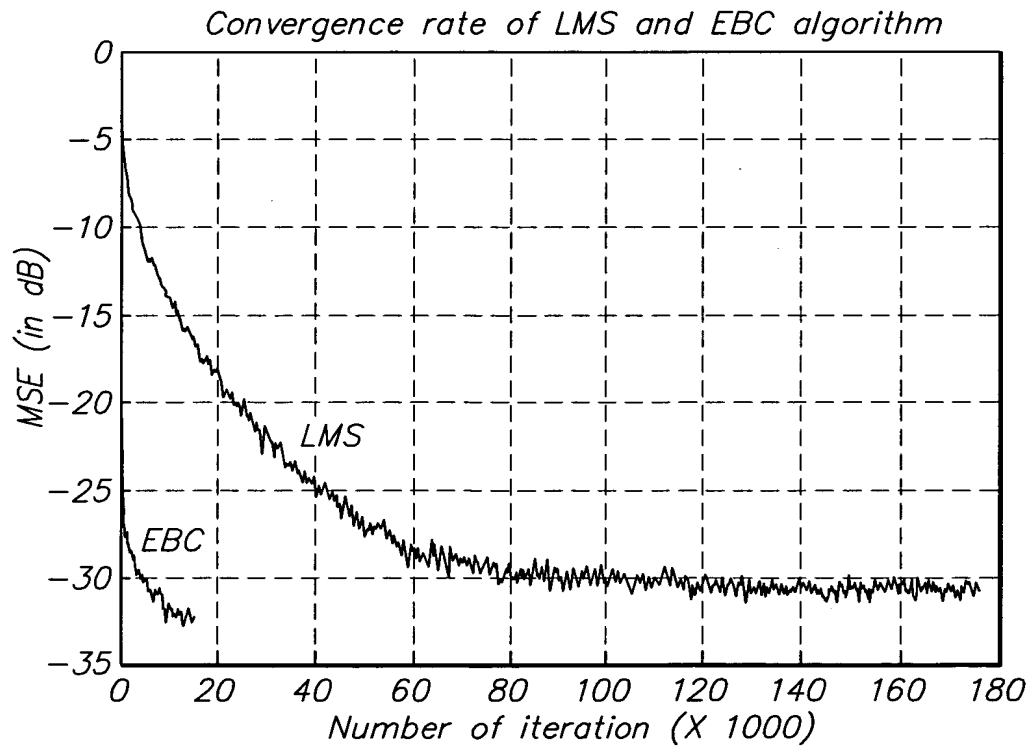


FIG. 3D

4/8

Step	Update Equation	# of Mul
1	$e \leftarrow \text{eps}_2 + A_f^T X_f$	mN
2	$A_f \leftarrow A_f - K_f e^T$	mN
3	$ep \leftarrow \text{eps}_2 + A_f^T X_f$	mN
4	$E_f \leftarrow \lambda E_f + e p e^T$	$2m^2$
5	$b_n \leftarrow K_f + A_f E_f^{-1} ep$	$m^3 + m^2 + mN$
6	$c_n \leftarrow E_f^{-1} ep$	m^2
7	$m \leftarrow [c_n(1:2); b_n(1:N_{ff}-2); c_n(3); b_n(N_{ff}+1:N-1)]$	0
8	$\mu \leftarrow [b_n(N_{ff}-1:N_{ff}); b_n(N)]$	0
9	$X_f \leftarrow [\text{eps}_2(1:2); X_f(1:N_{ff}-2); \text{eps}_2(3); X_f(N_{ff}+1:N-1)]$	0
10	$\eta \leftarrow p_3 + D_f^T X_f$	mN
11	$D_f \leftarrow (D_f - m \eta^T)(I - \mu \eta^T)^{-1}$	$m^2(N+1) + m^3 + mN$
12	$K_f \leftarrow m - D_f^T \mu$	mN
13	$x_{\text{est}} \leftarrow C_f X_f$	N
14	$\text{error} \leftarrow \text{decision} - x_{\text{est}}$	0
15	$C_f \leftarrow C_f + \text{error } K_f$	N
Total complexity		$(m^2 + 7m + 2)N + 5m^2 + 2m^3$

FIG. 4

5/8

Step	Update Equation	# of Mul
1	$e \leftarrow \text{eps}_2 + A_f^T X_f$	mN
2	$A_f \leftarrow A_f - K_f e^T$	mN
3	$ep \leftarrow e(1 - K_f^T X_f)$	$N+m$
4	$F_f \leftarrow \lambda F_f + ep^T$	m^2
5	$c_n \leftarrow F_{f1+e}^T F_{fep}$	$2m(m+1)$
6	$F_f \leftarrow F_f - c_n e^T F_f$	$m(m+1)$
7	$b_n \leftarrow K_f + A_f c_n$	mN
8	$m \leftarrow [c_n(1:2); b_n(1:N_{ff}-2); t_3(3); b_n(N_{ff}+1:N-1)]$	0
9	$\mu \leftarrow [b_n(N_{ff}-1:N_{ff}); b_n(N)]$	0
10	$X_f \leftarrow [\text{eps}_2(1:2); X_f(1:N_{ff}-2); \text{eps}_2(3); X_f(N_{ff}+1:N-1)]$	0
11	$\eta \leftarrow p_3 + D_f^T X_f$	mN
12	$K_f \leftarrow (m - (D_f \mu)) / (1 - \eta^T \mu)$	$(m+1)N+m$
13	$D_f \leftarrow D_f - K_f \eta^T$	mN
14	$x_{\text{est}} \leftarrow C_f X_f$	N
15	$\text{error} \leftarrow \text{decision} - x_{\text{est}}$	0
16	$C_f \leftarrow C_f + \text{error } K_f$	N
Total complexity		$(6m+4)N+4m^2+5m$

FIG. 5

6/8

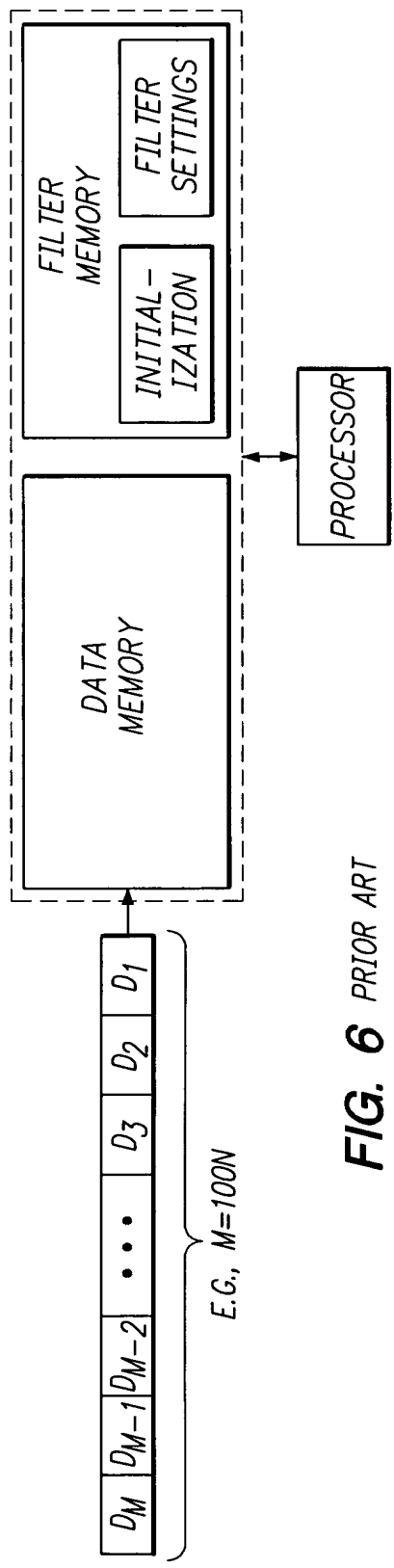


FIG. 6 PRIOR ART

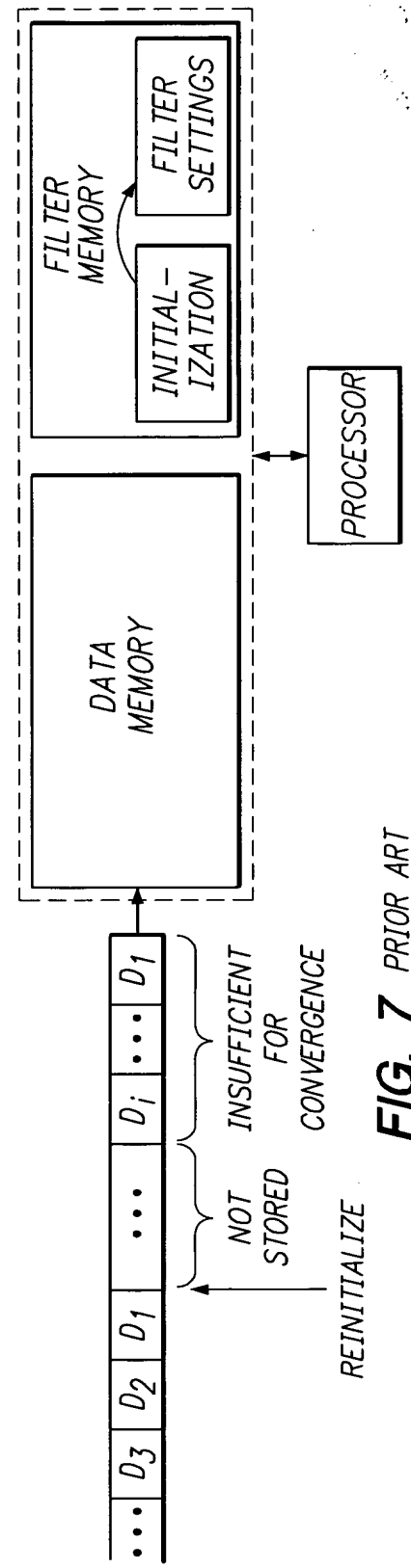


FIG. 7 PRIOR ART

7/8

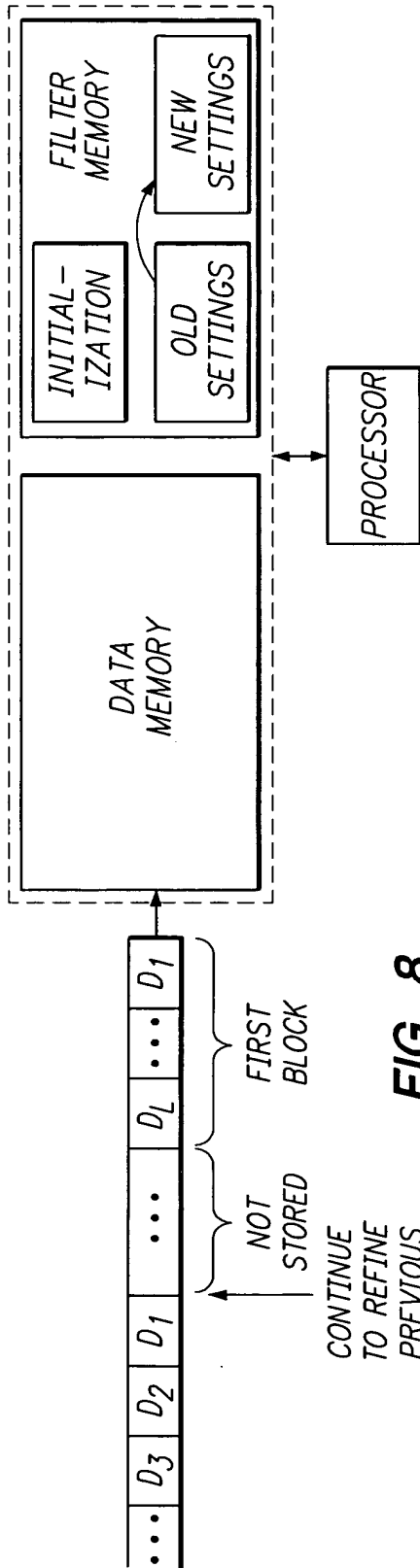


FIG. 8

A_{fast} ← stored A_{fast} , $(N \times 3)$
 D_{fast} ← stored D_{fast} , $(N \times 3)$
 F_{fast} ← stored F_{fast} , (3×3)
 K_{fast} ← stored K_{fast} , $(N \times 1)$
 C_{fast} ← stored C_{fast} , $(N \times 1)$
 X_{fast} ← fill with new data in order, $(N \times 1)$
 decision ← most current input data. (1×1)

FIG. 9

8/8

FIG. 10

